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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,481

06/14/2006

Tapani Honkanen

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EXAMINER

HUG, ERIC J

ART UNIT

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1791

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/596,481	<b>Applicant(s)</b> HONKANEN ET AL.	
	<b>Examiner</b> Eric Hug	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 17-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-21, 28, 29, 33 and 35 is/are rejected.
- 7) ☒ Claim(s) 22-27, 30-32, 34 and 36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/14/06</u>   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-21, 28, 29, 33, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banning (WO 98/35094) in view of Austin (US 3,208,292).

Banning discloses a paper machine roller with an oscillation system for moving the roller back and forth along its longitudinal axis. The oscillation is provided by two geared eccentric drives equipped with motors. The eccentric positions of the two eccentric drives can be adjusted relative to one another. Two pairs of masses are rotated by the two electric motors, which are regulated separately to create a desired phase difference thereby allowing the length of the oscillation to be adjusted. A control device is provided which enables the angular position of the second motor to be regulated depending on the angular position of the first motor. Regarding the independent claims, Banning discloses the claimed features of a cradle mounted for linear motion and attached to a paper machine roll, first and second pair of eccentric masses mounted to the cradle, first and second drive shafts for the pairs of eccentric masses, and a motor which drives one of the drive shafts. Because Banning utilizes individual motors for the drive shafts, Banning does not disclose a the claimed drive train having intermeshed first and second gears arrangement having an adjustment element operable to rotate the second drive shaft relative to

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the first drive shaft in order to change their mutual position and thus create and adjust a phase difference between the first and second drive shafts.

Analogous to Banning, Austin discloses the use of geared rotating eccentric masses to generate an oscillatory force in the axial direction. Two pairs of rotating eccentric masses are mounted within a housing and driven by respective drive shafts (60, 62). Masses 74 and 76 are mounted on first drive shaft 60. Masses 94 and 96 are similarly mounted on second drive shaft 62. Drive shaft 60 is linked to a drive motor. Each drive shaft has a fixed gear connected thereto and a rotatably mounted gear connected thereto. The fixed gears on each shaft mesh with the rotatable gears on the other shaft. The two drive shafts are linked together through a common adjustable differential gearing arrangement 108. This gearing is used to vary the phase relationship between the individual forces produced by the mass pairs in order to control the amplitude of the resultant summed oscillatory force. See column 2, lines 52-72; see column 4, line 7 to column 5, line 10; see Figure 3. This drive arrangement of Austin reads on the claimed drive train.

The arrangement of Austin is advantageous over Banning in that only one motor is used, whereas in Banning, separate motors may undesirably increase the cost, size, and complexity of the system. Therefore, it would have been obvious to one skilled in the art to replace the oscillation system of Banning with that of Austin in order to provide a simpler oscillation system which may be preferable in instances where independent variation of speed, phase, and amplitude of each pair of masses is not necessary. By replacing the two motors and independent gearing of Banning with the single motor and coupled gearing of Austin, one arrives at the present invention.

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The features of the dependent claims are found in Austin as follows:

Claim 18: Shafts 124 and 132 (Figure 3) are equivalently the claimed auxiliary shafts and gearing arrangement 108 is equivalently the claimed adjustment element.

Claim 19: Only the first drive shaft 60 is connected to the motor.

Claim 20: Gear 144 is equivalently the claimed first gear, and is mounted on first auxiliary shaft 124. Gear 146 is equivalently the claimed second gear, and is mounted on second auxiliary shaft 132. The adjustment element 108 is arranged between the two gears 144 and 146.

Claim 21: The adjustment element 108 is driven by means of motor 48. The adjustment element is capable of returning to its initial position.

Claim 28: Housing can be filled with oil (see column 6, lines 5-8). It is deemed well within the skill of one in the art to feed oil to the housing via a pump and control the feed of oil through a control system.

Claim 29: Main body 110 of housing 40 serves as a common bearing stand for the two auxiliary shafts 124, 132 and the adjustment element 108.

*Allowable Subject Matter*

Claims 22-27, 30-32, 34, and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 22-27, 34, and 36 are allowable for providing that the adjustment element is a sleeve mounted for axial movement relative to the second drive shaft and the second gear.

Claims 30-32 are allowable for providing that the adjustment element and drive device are fitted inside the second gear.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Barba (US 5,825,663) discloses a control system in arrangements for producing an axial oscillation (linear vibration) utilizing two pairs of rotating eccentric masses.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is (571) 272-1192.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eric Hug/  
Primary Examiner, Art Unit 1791